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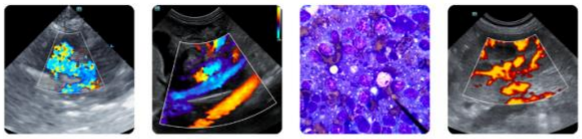


Clinical Sonography & Telecytology
Educational Teleconsultation Services™

SonoPath
FOSTERING THE ART OF VETERINARY MEDICINE™
SonoPath.com info@sonopath.com 1.800.838.4268

PATIENT

Shamus Denegri

SPECIES

Canine

BREED

Rat Terrier

SEX

Neutered Male

AGE

10 Years

WEIGHT

7.36 kg

INTERPRETED BY

James Wood, DVM, DACVIM (Cardiology)

IMAGING PERFORMED BY

Loetitia Saint-Jacques, LVT

HOSPITAL NAME

Grass Valley VH

REFERRING VET

Dr. Yoffe

INVOICE

36892

DATE

4/30/26

PRESENTING CLINICAL SIGNS

History: Grade 3-4/6 murmur, Rec echo before undergoing dental procedure
Meds- Vetmedin 5mg 1/2 tablet PO BID.

ULTRASONOGRAPHIC EXAMINATION OF THE HEART

CANINE CARDIAC PARAMETERS	LA long axis	LAmaxN	Ao long axis	LA/AO (Heart Base; Swe, short axis)	LA/AO long axis	LVIDd	LVIDdN
NORMAL PARAMETER		<1.57		<1.6	<2.5		<1.7
PATIENT	2.96	1.6	1.08	1.7	2.7	3.04	1.62
CARDIAC PARAMETERS	**Body Weight (kg)**	**AV VMAX (m/s)**	**PV MAX (m/s)**	**MR VMAX (m/s)**	**TR VMAX (m/s)**	**FS (%)**	**LVIDsN**
NORMAL PARAMETER		0.7-1.7	0.7-1.6			22 - 49%	<0.9
PATIENT	7.36	1.49	0.95	5.23	2.58	40.7	0.82
CARDIAC PARAMETERS	**HR (bpm)**	**MV E (m/s)**	**MV A (m/s)**	**MV E/A (m/s)**	**EF (%)**	**IVSdN**	**LVFWdN**
NORMAL PARAMETER						<0.6	<0.6
PATIENT	--	0.8	0.53	1.5	74	0.43	0.42

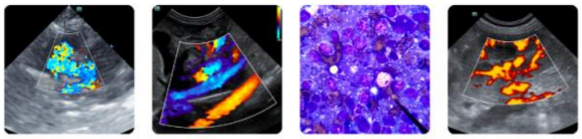
Cardiac Presentation

Mitral Valve: Severe thickening of the anterior mitral valve leaflet and moderate thickening of the posterior leaflet were noted. Mild to moderate eccentric and posteriorly directed mitral valve insufficiency was noted with a prominent coanda effect.

Left Atrium: The left atrium is mildly dilated.

Left Ventricle: The left ventricle is equivocally dilated with normal global LV systolic function. Transmitral inflow E and A waves suggest a normal pattern of LV filling.

Aortic Valve: The aortic valve is normal in appearance and motion. Normal trans-aortic flow profile



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and velocity. The aortic valve is competent.

Right Atrium: The right atrium is subjectively normal in size.

Tricuspid Valve: There's mild eccentric tricuspid valve insufficiency directed towards the RA free wall.

Right Ventricle: The right ventricle is subjectively normal in wall thickness and chamber size. There is normal estimated RV systolic pressure.

Pulmonary Valve and Pulmonary Trunk: The pulmonary valve is normal in appearance and motion. Transpulmonary flow profile and velocity are normal. The pulmonary trunk and proximal branch pulmonary arteries are normal in size with a subjectively normal RPA distensibility.

Pulmonary Hypertension: There is a low suspicion of clinically relevant pulmonary hypertension based on the lack of morphologic changes to the right heart and proximal pulmonary arteries.

Abdomen: The caudal vena cava is normal in size/distensibility. The hepatic veins are subjectively normal in size. No cavitary effusions visualized.

ULTRASONOGRAPHIC FINDINGS

- Myxomatous mitral valve disease, ACVIM stage B-2
- Mild tricuspid valve insufficiency

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The echocardiogram showed evidence of myxomatous mitral valve disease. Based on this echocardiogram, there is significant enough chamber enlargement that the patient would benefit from starting pimobendan (if not already started) to slow the progression of this disease and delay the onset of CHF.

CHF at this time is unlikely based on the reported history and examination, however baseline chest X-rays (within the last ~6 months- 1 year) are reasonable to fully rule out CHF and obtain a baseline of the patients pulmonary parenchyma for comparison should clinical signs develop in the future.

A blood pressure is also recommended. If the systolic BP >160mmHg while calm, an ACEi at 0.3-0.5 mg/kg PO q12 is recommended provided normal renal function. If so, recheck BP and renal panel with electrolytes in 1-2 weeks. Amlodipine should be considered if persistently hypertensive.

If not hypertensive, the benefit of an ACEi or other RAAS blockade is not well established in this population of patients, and is typically reserved for once CHF develops, or if the left atrial and ventricular dimensions are severely increased. Monitoring of renal function is necessary when on these medications.

MONITORING

It is very important to catch any clinical signs concerning for emerging CHF as early as possible. The most reliable method is to monitor the resting respiratory rate at home while the pet is (ideally) sound asleep. Count the respirations per minute (number of times the chest moves in and out per minute; in

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and out being one breath) while sound asleep. Normal resting respiratory rates in animals will be between 10-30 breaths per minute or less (ideally in the teens or low 20s). **If the resting RR is trending upward**, consistently>35/min while resting/sleeping AND/OR there is a new or progressive cough, the patient should be seen urgent for evaluation to determine if CHF is developing. Keeping a log of breathing rates is useful, and you can download the app "Cardalis" that helps measure and keep a log of breathing rates.

MEDICATIONS

Recommend continuation of Pimobendan, 5.0 mg tablet, half tablet PO Q12.

DIET

Mild sodium restriction may be beneficial in managing this stage of cardiac disease. High-salt treats or diets should be avoided. If interested, further information on moderate sodium restricted diets for dogs with advanced cardiac disease can be found at: https://heartsmart.vet.tufts.edu/nutrition/.

RECHECK

Recheck in 6 months or sooner if concerns arise. At that time, a recheck echocardiogram to monitor for progression +/- thoracic radiographs (i.e. recommended if there is a new cough or increase in the RR).

ANESTHESIA

There is a mild to moderately increased risk to anesthesia given the underlying cardiac disease. On top of the increased intraoperative risks (hypotension, hypoventilation, hypothermia) with cardiac disease, there is an increased risk of precipitating CHF. With this understanding, anesthesia can be pursued pending normal labwork, with appropriate precautions. **Baseline thoracic radiographs are recommended within 1-2 months of anesthesia**, not only to rule out CHF, but to serve as a baseline for comparison if a new cough or other respiratory signs develop after anesthesia. Pimobendan can be given three times daily for 2-3 days prior to and following anesthesia to support cardiac function. The morning dose of an ACEi (if started) should be skipped the day of anesthesia.

Recommendations for pre-operative sedation include an opiate (such as butorphanol) combined with a benzodiazepine (such as midazolam or diazepam). It is recommended to avoid alpha 2 agonists, as these agents can cause vasoconstriction and worsen MR, exacerbating left atrial hypertension. These effects persist for hours even after reversal. Etomidate or alfaxalone are preferred induction agents. Propofol can be considered for induction; however, is less preferred to alfaxalone or etomidate. Ketamine should ideally be avoided. Atropine should be used as needed for blood pressure support when bradycardia is present during periods of hypotension.

Full cardiac precautions should be taken with regards to monitoring (ideally CO2, SpO2, ECG, and BP monitoring) and judicious IV fluid administration (avoid volume overload or underload/hypotension - 3-4 mL/kg/hr surgical fluid rate is recommended). All other methods of blood pressure support should be utilized **instead of fluid boluses** (i.e. reduce inhalant/use MAC reducing agents, consider

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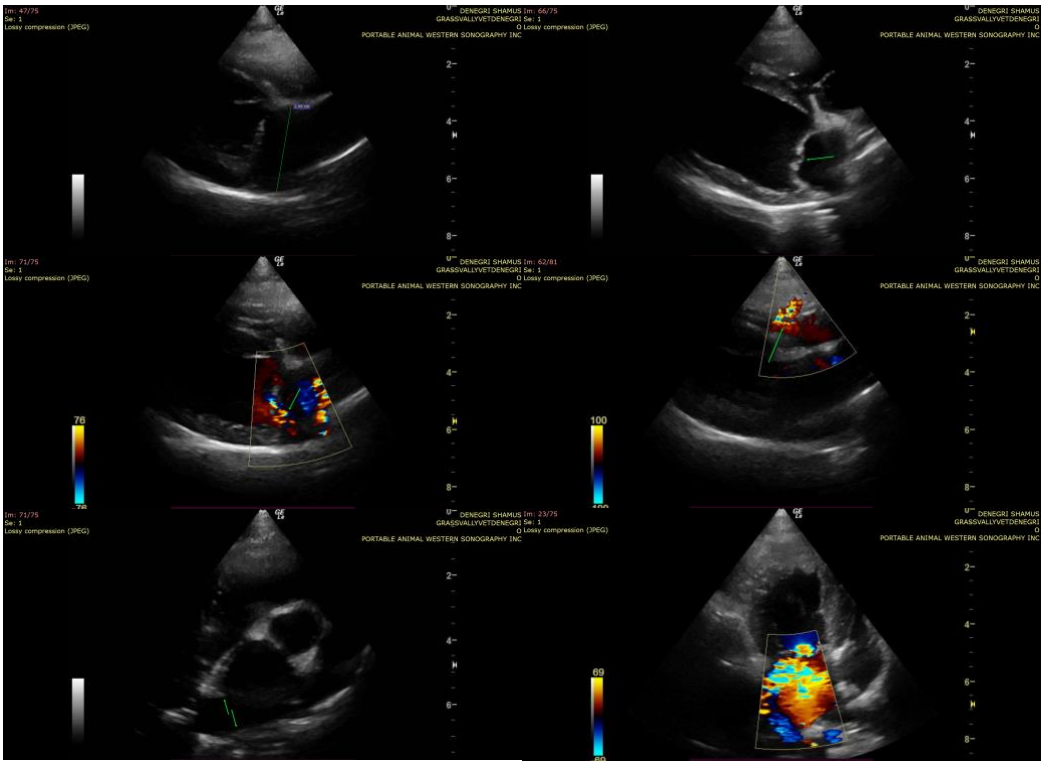
anticholinergics if bradycardia + hypotension), and the use of parenteral inotropes should be considered (i.e. dobutamine or dopamine).



The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

Thank you for this referral. If the clinical or image interpretation does not parallel your findings or if I can be of any further assistance please contact me.

James Wood, DVM, DACVIM (Cardiology)

info@SonoPath.com